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National Aeronautics
and Space Administration

MARCH 14, 1996

NRA 96-OSS-6

Research Announcement

Research in Exobiology

APPENDICES A - D

97-009357/VB

Proposals Due: June 14, 1996

C

APPENDIX A
NRA 96-OSS-6

I. SCOPE OF THE EXOBIOLOGY PROGRAM

The goal of NASA's Exobiology Program is to understand the origin, evolution, and distribution of life in the universe. Research is focused on achieving this goal by tracing the pathways taken by the biogenic elements, leading from the origin of the universe through the major epochs in the evolution of living systems and their precursors. These epochs *(and the approximate percentage of exobiology research funding historically allocated to each)* are: 1) The cosmic evolution of the biogenic compounds *(15%)*; 2) prebiotic evolution *(35%)*; 3) the early evolution of life *(35%)*; and 4) the evolution of advanced life *(15%)*.

The principal goal of research in the area of the cosmic evolution of the biogenic compounds is to determine the history of the biogenic elements (C, H, N, O, P, S) from their birth in stars to their incorporation into planetary bodies. Emphasis is placed on studies that constrain or extend concepts of possible chemical evolution relevant to the origin, evolution, and distribution of life.

Research in the area of prebiotic evolution seeks to understand the pathways and processes leading from the origin of a planet to the origin of life. The strategy is to investigate the planetary and molecular processes that set the physical and chemical conditions within which living systems arose. Four major objectives are to: 1) determine constraints on prebiotic evolution imposed by the physical and chemical histories of planets; 2) develop models of active boundary regions in which chemical evolution could have occurred; 3) determine what chemical systems could have served as precursors of metabolic and replicating systems both on Earth and elsewhere; and 4) determine in what forms prebiotic organic matter has been preserved in planetary materials.

The goal of research into the early evolution of life is to determine the nature of the most primitive organisms, the environment in which they evolved, and the way in which they influenced that environment. As an approach to understanding life in the universe, the opportunity is taken to investigate two natural repositories of evolutionary history available on Earth: the molecular record in living organisms and the geological record in rocks. These paired records are used to: 1) determine when and in what setting life first appeared; 2) determine the characteristics of the first successful living organisms; 3) understand the phylogeny and physiology of microorganisms thought to be analogs of primitive environments; 4) determine the original nature of biotic energy transduction, membrane function, and information processing through study of extant microbes; and 5) elucidate the physical, chemical, and biotic forces operating on microbial evolution.

The research associated with the study of the evolution of advanced life seeks to determine the extrinsic factors influencing the development of advanced life and its potential distribution. This research includes an evaluation of the influence of extraterrestrial and planetary processes on the appearance and evolution of multicellular life, conducted by: 1) tracing the effects of major changes in the Earth's

environment on the evolution of complex life, especially during mass extinction events, and 2) determining the effects of global events and of events originating in space on the production of environmental changes that affected the evolution of multicellular life. Also, studies will be considered that would seek approaches to investigations furthering our understanding of the distribution of life elsewhere in the universe.

Note: The Exobiology Program no longer supports activities for the development of experiment or instrument concepts, through breadboard stage. This activity has been transferred to the Planetary Instrument Definition and Development Program. For more information, contact Dr. Theodor Kostiuk, Code SLC, NASA Headquarters, Washington DC 20546-0001; phone (202) 358-0297.

The Exobiology Program interacts with other programs within the Office of Space Science and elsewhere within NASA in an integrated effort to accomplish the goal of understanding life in the universe. Research within the program is integrative and interdisciplinary in nature and is supported scientifically by work done in other NASA space and life science programs.

II. PROGRAM MANAGEMENT INFORMATION

Proposals are sought for either new projects or the renewal of existing projects which fall within the scope of the Exobiology Program. Periods of performance from 1-5 years (typically 3 years) may be proposed, if appropriate to the nature of the contemplated research. Proposers are reminded that programmatic balance requirements (see historical percentages above) may limit the opportunities for funding in some areas. Progress reports for funding the second or subsequent years of research, for previously approved multiple-year awards, are considered separately and should be sent directly to the exobiology program manager.

III. EQUIPMENT UPGRADE

Funds are available under the Planetary Instrument Upgrade Program (PIUP) to provide for upgrading of analytical instruments required by investigations sponsored by the Exobiology Program. New, major analytical instrumentation that is necessary for the conduct of proposed research, or that would substantially improve its quality, should be identified and requested in a special section of each proposal, to be titled "Major Equipment Request." Details of specific guidelines, restrictions, and exclusions are provided in Appendix C of this NRA.

IV. SUPPLEMENTARY PROPOSAL PREPARATION INFORMATION

A. The "Conformance to Guidance" and "Proposal Contents" sections of Appendix B are modified as follows:

The first three pages of the proposal constitute summary sheets and, for ease of evaluation, should approximate the sample formats given in Appendix D. Only applicable headings and material need be included. Note that the "Transmittal Letter

or Prefatory Material" sections still apply and that complete, detailed budgets and cost breakdowns, as necessary, must still appear in the main body of the proposal. At least one copy of the proposal must bear the signature of a responsible official or authorized representative of the organization, or any other person authorized to contractually commit or obligate the organization (unless the signature appears on the proposal itself). Proposals from foreign organizations should not contain budgetary information. The remainder of the proposal immediately following the summary pages (with the exception of the abstract) should be prepared in accordance with the instructions in Appendix B, except as noted below.

With each proposal, there should be included a signed certification regarding drug-free workplace requirements and a certification regarding debarment and suspension requirements. If the proposal budget is for a cumulative amount of $100,000 or more, there must also be a certification regarding lobbying. Examples are included in Appendix D.

B. The following paragraphs are added to the "Project Description" section of Appendix B:

This section describes and justifies the proposed research. It should be a clear and concise statement of the research proposed, identifying and relating the key elements. The scientific objectives, the significance of the investigation, and their relevance to exobiology must be clear. Give attention to the nature and amount of experimental data to be collected, as appropriate; describe the methods or approaches to be used; discuss the advantages of the proposed approach over alternatives. When possible, the proposal should be divided into separate tasks that can be carried out independently; these tasks should be enumerated and described. If the investigation cannot be completed within 12 months of the award, the proposal should contain a brief description of work plans and budget requirements for each year of the effort. The proposal should contain sufficient detail to enable a reviewer to make informed judgments about: (1) the relevance of the proposal to the Exobiology Program and to the objectives of the Office of Space Science; (2) the probability that the investigators will be able to accomplish their stated objectives with the resources requested; and (3) the overall merit of the proposed research according to the evaluation factors in Appendix B.

C. The following paragraphs are added to the "Proposed Costs" section of Appendix B:

The proposal should contain budgets for each year of the proposed effort. Sufficient proposal cost detail and supporting information will facilitate a speedy evaluation and award. Dollar amounts proposed with no explanation (e.g., Equipment: $58,000, or Labor: $110,000) may cause delays in evaluation and award. The proposal costing information should be sufficiently detailed to allow the Government to identify costed elements for evaluation purposes. Generally, the Government will evaluate costs as to reasonableness, allowability, and allocability. The Proposal Cost Summary should display the desired detail. Each category should be explained. Offerors should exercise prudent judgment as the amount of detail necessary varies with the complexity of the proposal.

Examples:

Direct Labor

Labor costs should be segregated by titles or disciplines with estimated hours and rates for each. Estimates should include a basis of estimate such as currently paid rates or outstanding offers to prospective employees. This format allows the Government to assess cost reasonableness by various means including comparison to similar skills at other organizations. Example:

	Hours	Rate	Amount
Chief Investigator	1,295	$19.34	$25,045
Assistant Investigator	330	11.78	3,887
Clerical Support	125	8.70	1,088
Total	1,750		$30,020

Indirect Costs

Indirect costs should be explained to an extent that will allow the Government to understand the basis for the estimate. Examples of prior year historical rates, current variances from those rates, or an explanation of other basis of estimates should be included. Where costs are based on allocation percentages or dollar rates, an explanation of rate and application base relationships should be given. For example, the base to which the General and Administrative (G&A) rate is applied could be explained as: application base equals total costs before G&A less subcontracts.

Other Cost

Each significant cost category should be detailed, explained, and substantiated. For example:

Travel Costs

Trips	Destination	Duration	Airfare	Per Diem	Total
1	Australia	6 days	$1,234	$550	$1,784
2	New Zealand	4 days	1,456	366	3,655
Total					$5,428

Equipment Purchases

Units	Type	Cost	Total
4	Laser measurement device	$4,399	$17,596

D. The "Length" section is modified as follows:

Each proposal for new work or for the extension of research by previously-funded investigators should be limited to fifteen (15) double-spaced, typewritten pages not including title pages, abstract, budget summary, and any request for new equipment. If applicable to either a new proposal or a renewal proposal, one set of pertinent reprints or other appendices should be included with each proposal copy submitted.

E. The following is added to the "Evaluation Factors" section of Appendix B:

The evaluation of intrinsic merit will include an assessment of potential impact the research results will have in the relevant scientific field. Emphasis will be placed on those endeavors which will go beyond the "next step" and results of which will enable other scientists to progress in their research.

F. The following section is added to Appendix B:

Foreign Investigations

Proposals from non-U.S. entities should not include a cost plan. Non-U.S. proposals and U.S. proposals which include non-U.S. participation must be endorsed by the respective government agency or funding/sponsoring institution in that country from which the non-U.S. participation is proposing. Such endorsement should indicate:

1. The proposal merits careful consideration by NASA; and

2. If the proposal is selected, sufficient funds will be made available to undertake the activity proposed.

Proposals, along with the requested number of copies and Letters of Endorsement, must be forwarded to NASA in time to arrive before the deadline established for this NRA. One copy of these documents should be sent to:

Ms. Shiron D. Gaines
Re: NRA 96-OSS-6 / Exobiology
International Relations Division
Code IRD
NASA Headquarters
Washington, DC 20546-0001
USA

All proposals must be typewritten in English. All non-U.S. proposals will undergo the same evaluation and selection process as those originating in the U.S. Non-U.S. proposals and U.S. proposals which include foreign participation must follow all other guidelines and requirements described in this NRA.

All proposals must be received before the established closing date; those received after the closing date will be treated in accordance with NASA's provisions for late proposals. Sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal without endorsement to the above address, if review and endorsement is not

possible before the announced closing date. In such cases, however, NASA's International Relations Division should be advised when a decision on endorsement can be expected.

Successful and unsuccessful proposers will be contacted directly by the NASA Program Office coordinating the NRA. Copies of these letters will be sent to the sponsoring agency.

Should a non-U.S. proposal be selected, NASA's International Relations Division will arrange with the non-U.S. sponsoring agency for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring agency will each bear the cost of discharging its respective responsibilities. Depending on the nature and extent of the proposed cooperation, these arrangements may entail:

1. A letter of notification by NASA; and/or

2. An exchange of letters between NASA and the sponsoring governmental agency.

NRA APPENDIX B

GUIDELINES FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS (NRA) FOR SOLICITED BASIC RESEARCH PROPOSALS

JUNE 1995

OFFICE OF PROCUREMENT
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, DC 20546

INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS (JUNE 1995)

1. Foreword

a. These instructions apply to "NASA Research Announcements." The "NASA Research Announcement (NRA)" permits competitive selection of research projects in accordance with statute while preserving the traditional concepts and understandings associated with NASA sponsorship of research.

b. These instructions are Appendix I to 1870.203 of the NASA Federal Acquisition Regulation Supplement.

2. Policy

a. Proposals received in response to an NRA will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a pre-award synopsis published for individual proposals.

b. A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

3. Purpose

These instructions supplement documents identified as "NASA Research Announcements." The NRAs contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRAs.

4. Relationship to Award

a. A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to an NRA. NASA will determine the appropriate instrument.

b. Grants are generally used to fund basic research in educational and nonprofit institutions, while research in other private sector organizations is accomplished under contract. Contracts resulting from NRAs are subject to the Federal Acquisition Regulation and the NASA FAR Supplement (NHB 5100.4). Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NHB 5800.1).

5. Conformance to Guidance

a. NASA does not have mandatory forms or formats for responses to NRAs; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

b. To be considered responsive, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.

6. NRA-Specific Items

Several proposal submission items appear in the NRA itself: the unique NRA identifier; when to submit proposals; where to send proposals; number of copies required; and sources for more information. Items included in these instructions may be supplemented by the NRA.

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7. Proposal Contents

a. The following information is needed to permit consideration in an objective manner. NRAs will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

b. **Transmittal Letter or Prefatory Material.** (1) The legal name and address of the organization and specific division or campus identification if part of a larger organization;

(2) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;

(3) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;

(4) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;

(5) Identification of other organizations that are currently evaluating a proposal for the same efforts;

(6) Identification of the NRA, by number and title, to which the proposal is responding;

(7) Dollar amount requested, desired starting date, and duration of project;

(8) Date of submission; and

(9) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

c. **Restriction on Use and Disclosure of Proposal Information.** Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting appropriate identification, such as page numbers, in the notice. In any event, information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

Notice

Restriction on Use and Disclosure of Proposal Information. The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

d. **Abstract.** Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

e. **Project Description.** (1) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance; relation to the present state of knowledge; and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(2) When it is expected that the effort will require more than one year, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

f. **Management Approach.** For large or complex efforts involving interactions among numerous individuals or other organizations, plans

for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described. Intensive working relations with NASA field centers that are not logical inclusions elsewhere in the proposal should be described.

g. **Personnel.** The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

h. **Facilities and Equipment.** (1) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use.

(2) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non-research purposes should be explained.

i. **Proposed Costs.** (1) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages; fringe benefits; equipment; expendable materials and supplies; services; domestic and foreign travel; ADP expenses; publication or page charges; consultants; subcontracts; other miscellaneous identifiable direct costs; and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all manpower data in terms of man-months or fractions of full-time.

(2) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired; purpose and estimated number and lengths of trips planned; basis for indirect cost computation (including date of most recent negotiation and cognizant agency); and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases. (Standard Form 1411 may be used).

(3) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

j. **Security.** Proposals should not contain security classified material. If the research requires access to or may generate security classified information, the submitter will be required to comply with Government security regulations.

k. **Current Support.** For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

l. **Special Matters.** (1) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(2) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

8. Renewal Proposals

a. Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal.

The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

b. NASA may renew an effort either through amendment of an existing contract or by a new award.

9. Length

Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments: their availability may be mentioned in the proposal.

10. Joint Proposals

a. Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

b. Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

11. Late Proposals

A proposal or modification received after the date or dates specified in an NRA may be considered if the selecting official deems it to offer NASA a significant technical advantage or cost reduction.

12. Withdrawal

Proposals may be withdrawn by the proposer at any time. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

13. Evaluation Factors

a. Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

b. Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

c. Evaluation of its intrinsic merit includes the consideration of the following factors, none of which is more important than any other:

(1) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.

(2) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(3) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.

(4) Overall standing among similar proposals and/or evaluation against the state-of-the-art.

d. Evaluation of the cost of a proposed effort includes the realism and reasonableness of the proposed cost and available funds.

14. Evaluation Techniques

Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is scientifically and programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.

15. Selection for Award

a. When a proposal is not selected for award, and the proposer has indicated that the proposal is not to be held for subsequent reviews, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

b. When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation. The contracting officer may request certain business data and may forward a model contract and other information which will be of use during the contract negotiation.

16. Cancellation of NRA

NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for cancelling the NRA or for anyone's failure to receive actual notice of cancellation. Cancellation may be followed by issuance and synopsis of a revised NRA, since amendment of an NRA is normally not permitted.

MAJOR EQUIPMENT REQUEST

UNDER THE

PLANETARY INSTRUMENT UPGRADE PROGRAM
(PIUP)

MAJOR EQUIPMENT REQUEST

I. Introduction

The Solar System Exploration Division expects to obtain funding to provide for the upgrading of laboratory instrumentation required by investigations sponsored by the Planetary Astronomy, Atmospheres, Geology and Geophysics, Materials and Geochemistry, and Exobiology programs. This funding totals approximately $2 million per year. New, major instrumentation that is necessary for the conduct of proposed research in these discipline areas, or that would substantially improve its quality, should be identified and requested in a special section of each proposal entitled Major Equipment Request.

In order to make the best possible use of the funds which have been made available, proposers who request funds for equipment are encouraged to:

a) Seek cost-sharing where appropriate. However, cost-sharing may not be done under a contract. Also, proposers need to recognize that NASA interprets cost-sharing arrangements as joint ownership, and that NASA has the option to retain title to instruments acquired under such arrangements. Issues of ownership and title may be especially tricky under such arrangements that involve other Federal agencies (e.g. the National Science Foundation). When joint ownership cannot be avoided, and the NASA contribution will exceed $1,000, agreements regarding NASA retention of its option to take title, and the conditions under which the option (if retained) will be exercised, shall be reached and documented prior to purchase.

b) Propose collective use, where that is reasonable; i.e. instruments that could be made available for use by other qualified members of the planetary science community. Such "facility-type" proposals would be especially attractive for high cost instruments (e.g. ion microprobes, transmission electron microscopes), or where the instruments is being developed for use on an existing facility (e.g. the NASA Infrared Telescope Facility).

Moreover, because funds are limited, certain exclusions or restrictions have been placed on the kinds of instruments or equipment appropriate to request.

II. Exclusions and Restrictions

Instruments or support equipment costing less than approximately $10,000 are not considered major. Requests for such items should be included in the body of the research proposals to the discipline program. Instrumentation or equipment considered inappropriate includes computers or computer peripherals (unless these are integral parts of the instrumentation requested) and support equipment (unless that equipment is essential to the operation of a new equipment item), and equipment repair where the repair does not involve significant enhancement of the instrument's basic capabilities. Nor should funds be sought to support maintenance and continued

operations of any instrument requested. These funds must be requested in the main body of the proposal, not in the Major Equipment Request section. Finally, in no event will proposals be considered that seek to design, develop, test, or evaluate new instruments that are to be considered for sale.

III. Major Equipment Request Requirements

A request for major equipment should be so written that it can be reviewed as a stand alone proposal. This is especially important for proposers who are operating under multiyear approvals and who normally would submit only a progress report to the program manager. It is important also, however, because equipment requests will be reviewed not only by peers of the proposer during normal discipline program proposal reviews but also by a multidisciplinary group less knowledgeable of the science areas in which the instruments are to be used. All requests should contain a short abstract and sections on project description, management, and costs.

Project Description: The main body of the request should first identify the instrument to be acquired or developed and the type of use proposed (investigator instrument, etc.). It should continue with a strong justification including a description of why the instrument is necessary for the investigator's research or how it would enhance that research, citing specific examples wherever possible. It should also demonstrate why the enhanced capability is important to planetary science in general. If a facility instrument is proposed, the justification should emphasize, as well, how the enhanced capability would benefit the larger planetary science community. All justifications should address how the requested instrument relates to existing capabilities, both in the investigator's own laboratory and to others in the community.

Any substantial collaboration with individuals not referred to in the budget, or use of consultants, should be described. Also, if cost sharing or substantial institutional contributions are anticipated, this should be discussed. It should be noted that proposals for cost sharing (between NASA and other agencies such as the Department of Energy or the National Science Foundation) should describe the extent that NASA's share of the cost will ensure adequate use by NASA investigators. This aspect of any proposed cost-sharing acquisition must be discussed. Also, if other agencies have been approached or have made tentative commitments, the proposal should document that and provide names and telephone numbers of appropriate officers in those agencies who can discuss their agencies' interests. When it is expected that the acquisition or development of an instrument or facility will require more than 1 year, the proposal should cover the complete project but with a clear distinction between the efforts involved in each requested year.

Management: A management section is required only if a facility instrument is requested. This section should include a description of how a requested facility instrument would be managed. If an investigator facility instrument is requested, this description should include a statement of the percentage of the instrument's time that would be available to other users and a general statement regarding aspects of user access, such as time of day when access would be granted, whether access would be hands on or by an operator or collaborator in the PI's group, cost of use and how

costing would be handled, and how users would gain access (personal communication, proposal, etc.).

If a regional facility instrument is requested, all of the above factors must be discussed but in the style of a formal document that the PI and his or her institutional official would be willing to agree to and sign.

Costs: If the instrument in question is to be acquired from commercial sources, only those costs directly associated with the acquisition, installation, and check-out of the instrument should be requested. No costs for maintenance or operation beyond the check-out period should be included. These must be requested in research proposals submitted to the appropriate discipline programs. If the instrument is to be developed by the investigator, all costs associated with the development and final check-out should be requested. Multiyear requests would be expected in these cases. In all cases, however, provision of an adequately documented cost section will facilitate evaluation, and, if selected, a speedy award. It is especially important that each relevant cost category (Direct Labor, Fringe Benefits, Overhead, and Other Direct costs such as Computer Use, Equipment, Travel, etc.) be detailed, explained, and substantiated in the proposal. For example, Direct Labor costs should include a listing of each labor type, hours to be expended, and salary rates used to calculate the yearly costs. Travel requirements should be explained in terms of the number of trips (travelers) to each destination, their duration, and all associated costs broken down by airfare, per diem, and ground transportation. Equipment costs should be itemized with references as to the source of the estimates. Finally, the basis for costs based on rates (Fringe Benefits, Overhead, etc.) should be explained. A summary would also be useful wherein costs for each major cost category is given for each year of requested support, together with a total for each year, and a grand total for all years requested. Sufficient proposal cost detail and supporting information as requested in Appendix B will facilitate a speedy evaluation and award.

IV. Evaluation

Evaluation factors will be those employed in evaluation of proposals received in response to an NRA, given in Appendix B, with the following additions. In considering the relevance of the request to NASA's objectives, attention will be focused on the value that would be added by the addition of the instrument capability to ongoing and anticipated research of the proposer, in particular, and to planetary science investigations in general. In evaluating the intrinsic merit of the request, an additional factor that will be considered, in addition to those listed in Appendix B, is the value that the new or enhanced capability would add to science and/or education beyond that offered specifically to planetary science.

The process to be followed in the evaluation is to have the equipment request reviewed by each discipline peer review panel during the full proposal review and in the context of research proposed. Those requests determined to be most worthy of support by the peer panels will be referred to a special panel chaired by the Chief, Planetary Science Branch, Solar System Exploration Division and composed of the pertinent Discipline Scientists. This panel will consider all referred requests from the

point of view of scientific merit, program balance, and funding availability. The Director, Solar System Exploration Division, will then make the final selection.

VII. Selection

Requests that are selected for support will be funded through augmentations to the grants which provide support for the investigator's basic research programs. If requests involve multiple year periods of performance for development activities, for example, annual augmentations to the basic continuing grants will be provided upon receipt and review of renewal requests submitted with research proposals.

Formats for Supplementary Information Recommended with Submitted Proposals

- Proposal Checklist
- Cover Sheet
- Key Personnel Listing
- Proposal Summary
- Full Budget Summary
- Yearly Budget Summary
- Current and Pending Support
- Certification Forms

Check List for Proposal Mailing

Original and 16 copies to LPI

Cover Sheet

Key Personnel

Proposal Summary

Budget Summary

Project Description

Personnel and Vitae

Facilities and Equipment

Budget for each year

Current and Pending Support

Certifications:

- Drug-free Workplace
- Debarment, Suspension, & Other Responsibilities
- Lobbying (if > $100,000)

EXOBIOLOGY PROGRAM

Log No. _____

Date Received: _____

Do not write in the shaded area.

NRA #: _____ **Grant/Contract/RTOP #:** _____

Date Submitted: _____

Please check all boxes appropriate to this NRA:

- o **Major Equipment**

- o **Full Proposal: New Research**
- o **Full Proposal: Renew Ongoing Research**

Research Area: _____

(Indicate research area; ie. cosmic evolution of the biogenic compounds, prebiotic evolution, etc.)

Type of Organization: _____

(Profit, non-profit, university, etc.)

Proposal Title: _____

Principal Investigator (Name): _____

Institution: _____

Address: _____

City/State/Zip Code: _____

Telephone: (____)_____ **Fax:** (____) _____

E-Mail Address: _____

_____ _____

Signature Date

Institutional Authorization Official:

_____ _____

Signature Date

Address: _____

City/State/Zip Code: _____

Telephone: (____)_____ **Fax:** (____) _____

Institution Contact or Business Representative:

Telephone: (____)_____ Fax: (____) _____

Please list all names and institutions below (use separate sheet if necessary)

Co-Investigators: **Institutions:**

Collaborators: **Institutions:**

Proposed Duration of Project: _____ months

Desired Start Date: _____ End Date: _____

Budget Request:

Year 1	Year 2	Year 3
$_____	$_____	$_____

Total Funding Requested: $_____

PROPOSAL SUMMARY

TITLE: _____

PRINCIPAL INVESTIGATOR: _____

INSTITUTION: _____

ABSTRACT

Type single-spaced within the space provided below. List:

1) Goals, overall objectives and justification of the work;
2) Progress and accomplishments of the prior year, or "new proposal";
3) Anticipated accomplishments listing what will be done this year, as well as how and why
4) a few of the PI's relevant publications on separate page.

RTOP# _____
GRANT/CONTRACT NO. _____

FULL BUDGET SUMMARY

TITLE: _____

PRINCIPAL INVESTIGATOR: _____

FULL DURATION REQUESTED: _____YRS START DATE: _____ END DATE: _____

1.	SALARIES AND WAGES	$_____
2.	SUPPLIES AND MATERIALS	$_____
3.	EQUIPMENT PURCHASES	$_____
4.	COMPUTER TIME (paid with PI funds)	$_____
5.	SERVICES	$_____
6.	PUBLICATIONS AND COMMUNICATIONS	$_____
7.	TRAVEL*	$_____
8.	OTHER (INCLUDING BENEFITS AND OVERHEAD)	$_____
9.	SUBTOTAL FULL DURATION BUDGET	$_____
10.	INSTITUTIONAL CONTRIBUTIONS	$_____
11.	CARRYOVER FROM PREVIOUS AWARD	$_____
12.	TOTAL BUDGET REQUESTED FOR ALL YEARS NEW FUNDS REQUESTED FROM NASA (LINE 9, 10, 11)	$_____

****

SUMMARY OF STAFFING REQUEST (NEAREST $K, NEAREST 0.1 PERSONYEAR)

1.	SENIOR PERSONNEL (GIVE NAMES)	_____ py	$_____
2.	TECHNICAL SUPPORT (GIVE NUMBER)	_____ py	$_____
3.	OTHER	_____ py	$_____
4.	TOTALS	_____ py	$_____

* Provide names of travelers, dates, and destinations for each year of support requested.

RTOP# _____
GRANT/CONTRACT NO. _____

YEARLY BUDGET SUMMARY

FIRST YEAR BUDGET AND PERSONNEL SUMMARY BREAKDOWN

TITLE: _____

PRINCIPAL INVESTIGATOR & INSTITUTION: _____

SUMMARY OF FIRST YEAR PROPOSED COSTS: (nearest $K)

1.	SALARIES AND WAGES	$_____
2.	SUPPLIES AND MATERIALS	$_____
3.	EQUIPMENT PURCHASES	$_____
4.	COMPUTER TIME (paid with PI funds)	$_____
5.	SERVICES	$_____
6.	PUBLICATIONS AND COMMUNICATIONS	$_____
7.	TRAVEL*	$_____
8.	OTHER (INCLUDING BENEFITS AND OVERHEAD)	$_____
9.	SUBTOTAL FULL DURATION BUDGET	$_____
10.	INSTITUTIONAL CONTRIBUTIONS	$_____
11.	CARRYOVER FROM PREVIOUS AWARD	$_____
12.	TOTAL BUDGET REQUESTED FOR ALL YEARS NEW FUNDS REQUESTED FROM NASA (LINE 9, 10, 11)	$_____

****

SUMMARY OF STAFFING REQUEST (NEAREST $K, NEAREST 0.1 PERSONYEAR)

1.	SENIOR PERSONNEL (GIVE NAMES)	_____ py	$_____
2.	TECHNICAL SUPPORT (GIVE NUMBER)	_____ py	$_____
3.	OTHER	_____ py	$_____
4.	TOTALS	_____ py	$_____

* Provide names of travelers, dates, and destinations for each year of support requested.

LIST CURRENT AND PENDING RESEARCH SUPPORT FROM ALL OTHER SOURCES

This list should include all current research support from all other sources. It must include the proposed project and all other research requiring a part or portion of time of the principal investigator and other senior personnel. The number of person-months must be stated regardless of the source of the support. Please provide this information in the following form:

I. Name of Principal Investigator

A. Current Support

1. Source of Support
2. Project Title and Short Abstract
3. Award Amount
4. Period Covered by Award
5. Person-Months
6. Location where research is/will be performed

B. Pending Proposals (including renewal applications)

1. Source of Support
2. Project Title and Short Abstract
3. Award Amount
4. Period Covered by Award
5. Person-Months
6. Location where research is/will be performed

II. Names of Co-Investigators

A. Current Support

1. Source of Support
2. Project Title and Short Abstract
3. Award Amount
4. Period Covered by Award
5. Person-Months
6. Location where research is/will be performed

B. Pending Proposals (including renewal applications)

1. Source of Support
2. Project Title and Short Abstract
3. Award Amount
4. Period Covered by Award
5. Person-Months
6. Location where research is/will be performed

III. Other agencies to which this proposal, or parts thereof, has been submitted.

CERTIFICATION REGARDING DRUG-FREE WORKPLACE REQUIREMENTS

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1988, 34 CFR Part 85, Subpart F. The regulations, published in the January 31, 1989 Federal Register, require certification by grantees, prior to award, that they will maintain a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award the grant. False certification or violation of the certification shall be grounds for suspension of payments, suspension or termination of grants, or government-wide suspension or debarment (see 34 CFR Part 85, Sections 85.615 and 85.620).

I. GRANTEES OTHER THAN INDIVIDUALS

A. The grantee certifies that it will provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing a drug-free awareness program to inform employees about –

(1) The dangers of drug abuse in the workplace;

(2) The grantees policy of maintaining a drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance programs; and

(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will

(1) Abide by the terms of the statement; and

(2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction;

(e) Notifying the agency within ten days after receiving notice under subparagraph (d) (2) from an employee or otherwise receiving actual notice of such conviction;

(f) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d) (2), with respect to any employee who is so convicted –

(1) Taking appropriate personnel action against such an employee, up to and including termination; or

(2) Requiring such employees to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or Local health, Law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e), and (f)

B. The grantee shall insert in the space provided below the site(s) for the performance or work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

_____

_____

_____

_____

Check _____ if there are workplaces on file that are not identified here.

II. GRANTEES WHO ARE INDIVIDUALS

The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance in conducting any activity with the grant.

Organization Name | AO or NRA Number and Title

Printed Name and Title of Authorized Representative

Signature | Date

Printed Principal Investigator Name | Proposal Title

CERTIFICATION REGARDING LOBBYING

As required by S 1352 Title 31 of the U.S. Code for persons entering into a grant or cooperative agreement over $100,000, the applicant certifies that:

(a) No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, in connection with making of any Federal grant, the entering into of any cooperative, and the extension, continuation, renewal, amendment, or modification of any Federal grant or cooperative agreement;

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting an officer or employee of any agency, Member of Congress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subgrants, contracts under grants and cooperative agreements, and subcontracts), and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by S1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Organization Name | AO or NRA Number and Title

Printed Name and Title of Authorized Representative

Signature | Date

Printed Principal Investigator Name | Proposal Title

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS PRIMARY COVERED TRANSACTIONS

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participants' responsibilities. The regulations were published as Part VII of the May 28, 1988 Federal Register (pages 19160–19211). Copies of the regulations may be obtained by contacting the U.S. Department of Education, Grants and Contracts Service, 400 Maryland Avenue, S.W. (Room 3633 GSA Regional Office Building No. 3), Washington, D.C. 20202-4725, telephone (202) 732-2505.

A. The applicant certifies that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this application been convicted or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or Local) with commission of any of the offenses enumerated in paragraph A.(b) of this certification;

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or Local) terminated for cause or default; and

B. Where the applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.

C. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lowered Tier Covered Transactions (Subgrants or Subcontracts)

(a) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principles is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department of agency.

(b) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name | AO or NRA Number and Title

Printed Name and Title of Authorized Representative

Signature | Date

Printed Principal Investigator Name | Proposal Title

OFFICIAL MAILING LIST UPDATE

NASA Research Announcement (NRA)/Announcement of Opportunity (AO) Mailing List Update

If your current address is NOT up-to-date, please fill out this form completely.

This is the update form for the NASA Office of Space Sciences (OSS) NRA/AO mailing list. Please fill out CONTACT INFORMATION completely. Check only those that apply in Institution Type and Discipline. Fold the form, secure with tape, and mail it back to the address on the reverse side. Proper postage must be applied.

MUST CHECK ONE

Please check which announcements you would like to receive:

- ☐ 1. NASA Research Announcements (basic, non-flight, on-going research)
- ☐ 2. Announcements of Opportunity (specific space flight mission)

Must check one, please include code number from mailing label:

- ☐ 1. Please *add* my name to the mailing list.
- ☐ 2. Please *remove* my name from the mailing list (please attach mailing label)
- ☐ 3. Please *update* my current listing.

CONTACT INFORMATION If your address has changed or your mailing label is incorrect, please provide *COMPLETE* contact information.

Code Number: (obtain from mailing label) | Salutation: (Mr.,Mrs.,Ms.,Dr.,Prof.,etc.) | Suffix (Ret.,PhD.,Jr.,III,etc.)

First Name: | MI: | Last Name:

Organization:

Division / Department:

Street:

City: | State: | Zip:

Telephone No: | Fax No:

E-Mail Address: _____ Internet Address: _____

Country: (foreign addresses, please specify)

Institution Type

(check only those that apply)

- ☐ 1. College or University
- ☐ 2. Minority College or University
- ☐ 3. Foreign Addressee
- ☐ 4. Minority Business
- ☐ 5. NASA HQs/Center
- ☐ 6. Nonprofit Corporation
- ☐ 7. Other Government Agency
- ☐ 8. Private Industry
- ☐ 9. Small Business

Societies:

- ☐ A. American Astronomical Society
- ☐ B. American Geophysical Union
- ☐ C. Others _____

Discipline:

(check only those that apply) **(MUST CHECK AT LEAST ONE)**

1. Astronomy and Astrophysics

- ☐ A. Theory and Modeling
- ☐ B. Instrumentation (Technology Dev)
- ☐ C. Laboratory Astrophysics
- ☐ D. Data Analysis (Archival)
- ☐ E. Observational Programs

2. Solar System Exploration

- ☐ A. Planetary Atmospheres and Astronomy
- ☐ B. Planetary Materials and Geochemistry
- ☐ C. Planetary Geology and Geophysics
- ☐ D. Instrument Development
- ☐ E. Origins of Solar Systems
- ☐ F. Exobiology

3. Space Physics

- ☐ A. Cosmic and Heliosphere Physics
- ☐ B. Solar Physics
- ☐ C. Magnetospheric Physics
- ☐ D. Iono-Thermo-Mesospheric Physics

4. Information Systems/Computer Science

- ☐ A. High Performance Computing and Networking
- ☐ B. Scientific Data Analysis and Visualization
- ☐ C. Science Data Storage and Management
- ☐ D. Software Technology

SPI
7/94

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END

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